December 19, 2005

VIA ELECTRONIC FILING

The Honorable Kevin J. Martin
Chairman
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Dear Chairman Martin:

Despite impressive efforts by the interconnected VoIP industry, it is apparent that many providers were unable to fully comply with the Commission's November 28 deadline for supplying full E911 access. (For example, according to a filing by Vonage's counsel, although Vonage is capable of transmitting a callback number and location for 100 percent of its subscribers, only 26 percent of its customers had full E911 access by the Nov. 28 deadline.) Most reports of the deadline have presented E911 compliance as an unfortunate "either/or" situation: *either* allow fledgling VoIP providers to market and offer service despite a lack of full E911 access *or* stifle the development of innovative VoIP services to ensure that consumers are not left without access to critical public safety services. As described below, such reports overlook at least one cost-effective solution by which many providers could achieve both goals: Zoom's TelePort™ technology.

By equipping subscribers with devices that integrate TelePort technology, VoIP providers can quickly and efficiently comply with the Commission's E911 VoIP rules. TelePort-equipped devices have a jack for plugging in one or more conventional telephones, a jack for interfacing to a Public Switched Telephone Network ("PSTN") phoneline, and the ability to route calls either to the Internet as VoIP calls or directly to the PSTN. When a subscriber dials 911, the TelePort "smart switch" automatically routes the call over the customer's conventional telephone line. The call is thus handled as it would be if a conventional phone were directly plugged into the customer's PSTN line (*i.e.*, it is routed by the telephone service provider's equipment onto the Wireline E911 Network). Zoom's VOIP subsidiary, Global Village, uses this CPE technology solution for its interconnected VOIP customers and has certified to the Commission that it is fully compliant with the FCC's E911 rules.

The latest generation of TelePort technology also ensures that subscribers maintain the crucial link between the TelePort-enabled VoIP device and a live PSTN connection, so the VoIP service provider and the customer know whether the VoIP device remains connected to a live PSTN line. Note that the live PSTN connection need only allow 911 calls; some or all other calls can be handled by the interconnected VoIP provider as VoIP calls.

The TelePort approach, routing 911 calls through the PSTN, has numerous benefits over a network-based solution to E911 compliance including the following:

1. The TelePort approach works for E911 calls even if the VoIP provider does not have an Internet-based means of connecting the customer to E911 service.

2. E911 handling with TelePort-equipped VoIP devices works even in a power outage. During a power outage the conventional telephone plugged into the TelePort-equipped device automatically connects to the live PSTN jack, typically via a relay. In contrast, devices that instead route E911 calls via a network-based solution typically cannot handle E911 calls in a power outage unless those devices have a backup power supply.

3. The TelePort approach properly identifies the user's location even if that user is nomadic. Whenever a nomadic VoIP user can plug into a live PSTN jack, that user's location is identified by the E911 service even if the nomadic user fails to update his or her registered location.

Because it is common for many VoIP subscribers to maintain a live PSTN connection, the TelePort solution will enable a variety of providers to continue deployment of their innovative services while ensuring that both existing and new subscribers have access to critical E911 services.

Other observers also have concluded that VoIP consumers could benefit by keeping a PSTN connection. I bring to your attention the attached recent *Consumer Reports* articles that advise VoIP subscribers to "keep a landline phone, even if you subscribe to the most basic level of service" and concludes that "VoIP still isn't a reliable replacement for landline 911 service for many consumers." For the large population of consumers who maintain a live PSTN connection, a TelePort-equipped VoIP device virtually guarantees E911 access.

Sincerely

Frank Manning

President, Zoom Technologies, Inc.

cc: Mr. Dan Gonzalez
Ms. Michelle Carey
Secretary, FCC (Ex Parte Notice in WC Docket Nos. 04-36 and 05-196)

THE RIGHT MIX
Wired & wireless & Web

Just as one phone isn't enough for most households anymore, one type of phone service probably isn't, either. For both safety and savings, you need at least two and possibly all three types.

Indeed, most readers of this report probably use both wired and wireless phones, and some will already have made the leap to the Internet-based phone service known as Voice over Internet Protocol, or VoIP. In the next few pages, we'll recommend ways to combine these services that should cut your phone bills, protect you in an emergency, and, just possibly, simplify your telephone life.

Here are the two basic steps to fine-tuning your telephone service, with some specific actions we recommend for each.

1 DECIDE ON YOUR LOCAL SERVICE

Keep a landline, regardless. It's possible to forsake local landline service and simply use your wireless phone or VoIP service as your local carrier. (With VoIP you will need a broadband Internet connection via DSL or cable to access the Internet and make calls, even local ones.)

But we don't recommend dropping your landline, at least not yet. Cell phones don't work everywhere, especially in rural areas. Cell-phone networks also have capacity issues, making it difficult or impossible to place calls when the system is overloaded. What's more, having a cell phone is no guarantee that you'll be able to make calls if your local landline system happens to go down; that's because cell-phone calls may travel over those same wires for part of their journey.

Finally, in only a handful of states, as of this writing, would 911 first responders be sure of pinpointing your location, and then not as precisely as with a landline.

VoIP, too, might leave you phoneless in an emergency if, for example, the power goes out. If you choose to make either wireless or VoIP your primary telephone service, we still recommend maintaining at least basic landline service at your home. For more about emergency service and 911 concerns, see page 18.

Pick the right-sized package. Even though you may have just one local landline telephone company, you probably have numerous packages from which to select. Verizon, for example, offers five levels of local service in suburban Westchester County, New York.

The best way to choose is to check several representative months' worth of phone bills for how many minutes of local calling you used. Unless you think your household's calling patterns will change markedly in the future (for example, if you have a talkative child going off to college), you'll probably do well to choose the plan that most closely matches your current usage pattern. Because phone companies won't necessarily volunteer that a different plan might suit you better, it's worth a quick call, recent phone bill in hand, to find out.

If you don't make a lot of local calls on your landline or use dial-up Internet service, a basic "measured service" plan may save you money. With these plans, you're either allotted a certain number of calls or

First things first
How the three types of phone networks work, and why they sometimes don't.

WIRED

Also known as landline. The familiar phone-line system, using cables running under or above the ground.

Pros Best voice quality. Fewer problems making and keeping a connection than with wireless. Most reliable of the three types and most likely to work in a power outage. Well-established 911 service provides a voice connection and reports your location to emergency responders. A single unified system connects wired phones in the U.S.

Cons Wires can be damaged by weather and other forces, disrupting service. Add-on features, taxes, and fees can substantially boost your bill. Even cordless phones are portable only within a limited range.

WIRELESS

Also known as cellular or mobile. Uses a network of radio towers to connect your call to the wired network.

Pros Mobility. Offers many additional services, including text and picture messaging, music streaming, games, e-mail access, and even TV snippets, depending on your service carrier and your phone's capabilities.

Cons Incomplete coverage and incompatible network technologies among service providers create "dead zones" where service is unavailable. Your phone may work in a local electrical power outage but not in a widespread outage. 911 location capability not fully implemented as yet. Voice quality not as good as on wired network.

INTERNET

Also known as Voice over Internet Protocol, or VoIP. Your telephone hooks up to the Internet using a broadband connection.

Pros Relatively inexpensive, especially for long-distance calls. Some services, such as caller ID and call waiting, may be free of charge. You can use your phone anywhere that a broadband Internet connection is available.

Cons May not work in an electrical power outage. Reliability depends on your Internet service provider. Voice quality may not be as good as a wired service's. Providers are required to forward 911 calls to the proper operators, along with your location, but how well that will work in practice is unknown.

you pay for every call you make. Expect to pay about $20, including taxes. Packages with unlimited local calling, sometimes referred to as "flat rate" service, can easily run twice that amount, especially if you add other, optional features, such as caller ID and call waiting.

Low-income consumers may be eligible for the Federal Communications Commission's Lifeline Assistance program, which provides discounts on phone service, and the Link-Up America program, which will pay a portion of their initial connection fees.

You may also save by switching local carriers. You can find out which local and long-distance carriers offer service in your ZIP code, and what they charge, at *www.telebright.com*, which provides data to our Web site, ConsumerReports.org.

Consider your wireless needs. Generally speaking, you'll get more local calls for your money with a landline than with wireless. But wireless has obvious advantages if you often make calls on the go, especially in this age of disappearing pay phones. Just check your current plan to make sure you aren't paying for more minutes than you actually use.

If you've found that you don't use a wireless phone much but would like to keep one around for roadside emergencies and other rare occasions, a prepaid wireless plan may save you money. Companies such as Cingular, T-Mobile, TracFone, and Virgin sell them for as little as $35, including the phone itself and a token number of minutes to get you started. After that, you can buy more wireless airtime at prices ranging from about 10 to 50 cents a minute.

Prepaid wireless minutes tend to cost less if you buy more of them. For example, a TracFone card good for 40 minutes costs $19.99, or nearly 50 cents a minute, while a 400-minute card is $79.99, or slightly less than 20 cents a minute. Bear in mind that your prepaid wireless minutes may expire; TracFone's, for example, generally expire after 60 days unless you have bought more TracFone minutes in the meantime, in which case they roll over.

2 CONSIDER HOW YOU USE LONG-DISTANCE

Look at a few months of phone bills from all of your services, both wireless and landline, to see which of the following best describes your typical usage patterns.

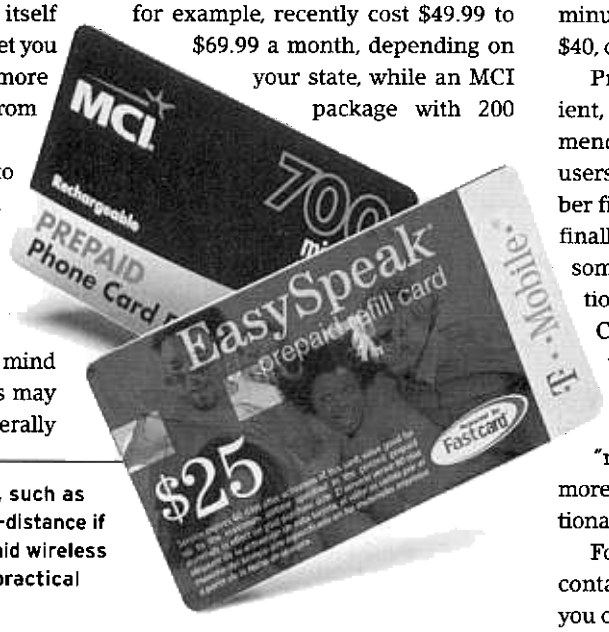
IF YOU DON'T MAKE A LOT OF CALLS

>> Typical monthly long-distance usage: well under 100 minutes.

>> Consider: Wired plus wireless (if you want to make calls on the go), prepaid phone cards, and dial-around services.

Use your wireless minutes. Before running up more minutes on your long-distance landline plan, make sure you've used the ones on your cell plan, unless they roll over to the next month. In fact, if you're happy with wireless voice quality and coverage, you can use it for all of your long-distance calling and jettison your landline long-distance service.

Avoid local/long-distance bundles. MCI, Verizon, and other carriers offer unlimited local and long-distance landline packages for a monthly rate of $50 to $70. But if you tend not to make many long-distance calls, the bundled price may raise your monthly cost. MCI's Neighborhood Unlimited package, with unlimited local and long-distance calling, for example, recently cost $49.99 to $69.99 a month, depending on your state, while an MCI package with 200 monthly long-distance minutes and unlimited local calling was $29.99 to $49.99 a month, again depending on your state. If you don't make a lot of long-distance calls and already have a local plan that meets your needs, you could be better off with a long-distance plan that simply bills based on the minutes you use; MCI had one called Net Value that charged $6.99 a month plus 4 cents a minute for state-to-state calls.



PICK A CARD Prepaid phone cards, such as MCI's, can save you money on long-distance if you don't make a lot of calls. A prepaid wireless refill card, such as T-Mobile's, is a practical option for infrequent cell callers.

Weigh both monthly fees and per-minute rates. This is good advice no matter how much long-distance service you use, but it's especially important if you don't make a lot of calls. For example, a long-distance plan that charges 5 cents a minute may seem like a bargain, even if it also carries a $3.95 monthly fee. But factoring in that monthly fee, if you use 75 long-distance minutes a month, your actual per-minute charge is more than 10 cents. For just 30 long-distance minutes a month, it's 18 cents.

Use prepaid phone cards. If you make few long-distance calls from your landline phone, such as less than $10 worth a month, consider dropping your long-distance carrier and using a prepaid phone card. (Note that your local phone company may charge you a one-time fee to drop your carrier.) Typically, the more minutes you buy, the less you'll pay for them. Walgreen's, for example, sells its own brand of phone card with 125 domestic minutes for $10, or 8 cents a minute, while its 800-minute card costs $40, or 5 cents a minute.

Prepaid cards are a little inconvenient, however, which is why we recommend them only for light long-distance users. You have to enter a toll-free number first, then an authorization code, and finally the number you want to call. Plus, some cards have hefty per-call connection charges and other sneaky fees. Check the terms first, and avoid cards with those charges. Also be sure you know whether, or when, your phone card expires. If you buy a "rechargeable" card, you can add more minutes to it, sometimes at an additional discount.

For the best deals, look to packages containing multiple cards. For example, you can buy a pack of twenty 100-minute

MAKING SURE 911 EMERGENCY HELP IS THERE IF YOU NEED IT

In the long aftermath of the devastating hurricanes of 2005, few questions remain more urgent than whether we can count on our phone systems in times of trouble. More than 3 million customers' phone lines were knocked out in Louisiana, Mississippi, and Alabama by wind and water during Hurricane Katrina in August. Many of the phone lines that still worked couldn't summon help because 911 call centers or the switching centers that route calls to them went down. Wireless phones also proved useless in many places, as more than a thousand cell sites and their switching centers became inoperative in the wake of the storm.

Some residents of the affected areas managed to reach help using other phone services, including text messaging over their wireless phones, Voice over Internet Protocol (VoIP), and satellite telephony. "Katrina proved that in emergencies you now have multiple ways of communicating," says Rick Jones of the National Emergency Number Association. "All worked in certain places, and all didn't work in certain places. Every service had its limitations."

The lesson for consumers is that while a single telephone account could suffice for individual emergencies, no one service can currently be counted on to work in a widespread calamity. For that reason, you may want to hedge your bets by subscribing to more than one type of phone service. Here's what to consider:

Landlines are vulnerable. The traditional wired phone system still sets the standard for reliability in emergencies, automatically providing local 911 centers with the caller's address. That can be a lifesaver in the event of a heart attack or stroke, for example. Yet as was dramatically demonstrated by Katrina, landline service can be disrupted too. Nearly a month after the hurricane, hundreds of thousands of wired phones were still cut off from service.

CRITICAL CALL This New Orleans police officer used his cell phone during a rescue operation. Damaged 911 call centers could not receive calls from either wired or wireless phones.

Most cell phones can't be located in an emergency. With more than 50 percent of all 911 calls made from wireless phones, and about one-third of cell phones purchased just for emergencies, many consumers depend on mobile telephone service in times of distress. But mobility has its price, requiring advanced technology to provide a 911 caller's position to local dispatchers.

The Federal Communications Commission, which regulates interstate calls, mandated that by Dec. 31, 2005, wireless 911 callers' position information, accurate to within several hundred feet, must be available to local emergency responders. At this writing, however, the wireless E911 system has not been fully deployed, so be prepared to provide location information when calling 911, which may be tricky at night or in an unfamiliar place. You can check on local compliance at *nena.ddti.net*.

Internet 911 is improving but still spotty. During Katrina, VoIP worked well in locations where broadband Internet connections were available. For instance, New Orleans city officials were first able to communicate with the outside world via VoIP. The FCC directed VoIP providers to make their services E911-compatible by Nov. 28, 2005. At this writing, some urban areas in the U.S. are supporting E911 calls from most VoIP providers, while rural areas are taking longer to comply. As a result, VoIP still isn't a reliable replacement for landline 911 service for many consumers.

Satellite phones also have drawbacks. The most consistently available emergency phone service throughout Katrina's onslaught and aftermath was satellite telephony. This service, used primarily by government, industry, and nomadic world travelers, is now generating interest as a backup option for emergencies. Handsets are somewhat bulkier than cell phones and sell for $750 to $1,500, plus the price of the calling plan. Unfortunately, satellite phones also have limitations. The phones require a clear view of the sky, making indoor use iffy, and adverse weather may also pose problems.

911 can call you. One result of the hurricanes' devastation has been greater interest in emergency community notification programs, which use automated outgoing telephone calls, e-mail, and text messages to tell residents about evacuations, environmental threats, or missing persons. This is usually referred to as Reverse 911, a trademark of Sigma Communications, the firm that originated the underlying technology. Such service is already in place in communities from Brookline, Mass., to San Diego, Calif. Note that these systems often rely on landline numbers from phone directories; people with unlisted numbers or wireless or VoIP service must provide their phone numbers to be included.

WHAT YOU CAN DO

Have more than one type of phone. First, keep a landline phone, even if you subscribe to the most basic level of service. VoIP still isn't ready to replace landline, in our view. A satellite phone may be a worthy option, but its expense will be hard to justify for most people. Keep your wireless phone's battery charged, have a spare, and/or a car charger, and also consider the following steps:

- Learn to use text messaging. In Katrina-battered New Orleans, wireless voice calls jammed the few remaining cell sites. But the same damaged telephone system continued to deliver text messages. If you're not familiar with creating and sending a text message, consult your phone's instruction book or the nearest teenager.
- Get a locatable cell phone. If you're using a handset that's more than two years old on the Sprint, Nextel, or Verizon wireless systems, it may not have the Global Positioning System (GPS) technology that would help a 911 operator determine your location. Look for the GPS logo in the instruction manual or on the box, or ask your carrier. If not, consider getting a new phone, just in case.
- ICE your cell phone. This idea, which apparently originated with a British paramedic, could assist rescue personnel if you are ever incapacitated. You simply create a contact in your cell phone's memory with the name ICE (for "In Case of Emergency"), listing the numbers of people you would want to be notified.

OUT COLD? An ICE number in your cell can aid rescuers if you're found unconscious.

PHOTO BY CORBIS

INTERNET PHONING
Lower cost, more capability

Consumers tired of paying big bills for traditional landline telephone service are increasingly turning to the Internet for some financial relief.

Many are saving $20 to $50 or more a month by using Voice over Internet Protocol, often called Voice over IP or VoIP. It transmits your voice calls over the same Internet lines that carry your e-mail.

Phone companies, cable companies, and newcomers such as Vonage offer VoIP service. Unlimited local and domestic long-distance plans cost $25 to $40 a month. Most include typical phone features—such as voice mail, caller ID, and call waiting—plus others you can't get with a landline, such as the ability to make local calls using your home phone number even if you're thousands of miles away.

The combination of price and features sounds unbeatable. The question is, does VoIP deliver? To find out, we surveyed 201 consumers using VoIP service. This small but nationally representative sample consisted mostly of users who'd had this emerging technology for a year or less. Their reaction was generally positive. More than half of those surveyed said they've cut their phone bills, and an equal number were highly satisfied with VoIP.

However, there are a number of drawbacks to VoIP, including issues regarding emergency 911 service. We strongly recommend that you keep a basic landline even if you get VoIP for day-to-day use.

Here's what early adopters have to say about their experiences with Internet phoning, followed by pointers to help you decide whether to try it yourself.

WHAT VOIP USERS THINK

About half the users we surveyed said reducing local and domestic long-distance phone bills was a factor in their decision to try VoIP; 24 percent wanted to save on international calls. They weren't disappointed. Almost 80 percent of those with lower bills saved at least $20 a month, and 34 percent saved $40 or more. Some said they were paying less even though they were making more long-distance calls.

Most of those surveyed didn't have to put up with poor sound quality or unreliable connections to realize those savings.

VoIP vs. landline. About 57 percent of consumers with both VoIP and landline service said Internet phone calls sounded at least as good as calls made on their traditional phone line. But 43 percent said the landline sounded better.

Half the users with VoIP and a landline found no difference in their ability to make and receive calls reliably. However, the rest were almost evenly split in rating VoIP or landline as more reliable.

VoIP vs. cell phone. Generally, survey respondents who used both VoIP and a cell phone said Internet phoning offered more-reliable connections than their cell phone and comparable voice quality.

While many of the users we surveyed had no trouble with VoIP, almost one-third had at least one dropped call or difficulty in making or receiving calls within a week of the survey. Some also had occasional problems hearing callers or being heard.

But the glitches don't seem to be that serious in light of overall satisfaction rates. More than half of the respondents said they were very or completely satisfied using VoIP in light of costs, service, and problems. Another 33 percent said they were fairly satisfied. Only 11 percent said they were dissatisfied to any extent.

TALK IS CHEAP Like many of the consumers we surveyed, Ginny Persico of Bedford, N.Y., switched to VoIP to save money. Her monthly phone bill has decreased by about $30, and her family can now call relatives in Germany for 8 cents a minute. She says the savings make up for occasional dropped calls and the need to fall back on cell phones when power outages disrupt the VoIP phone service.

BEFORE YOU TAKE THE PLUNGE

If the generally positive experience of users piques your interest in VoIP, here's what you should know before signing up.

You might have a new "phone company." Some traditional landline and wireless phone companies, such as AT&T and Verizon, offer VoIP service, but you'll encounter other names not normally associated with telephones. Those include cable companies such as Cablevision and Time Warner Cable, as well as businesses that specialize in VoIP. One of the biggest mainstream providers is Vonage, a VoIP-only company that recently announced it had signed its millionth subscriber.

You can use regular phones. You can use any standard Touch-Tone phone with VoIP, and the person you're calling does not need special equipment or Internet access. You plug your phone into an analog telephone adapter, called an ATA, which you can buy at a retail store for $100 or less; some companies provide one at little or no cost. The adapter connects to a router or modem, which in turn hooks up to the cable or DSL line that serves as your broadband connection. (See CloseUp on page 31.)

Only one phone must be connected to the VoIP adapter. Most of the users we surveyed—57 percent—have one phone on the VoIP line. To have more than one phone on the line, you can use a cordless phone with several handsets or a multiple-jack device with the adapter. You may be able to use the existing phone wiring and jacks to plug all your phones into the VoIP line, but only if you give up your landline, which we don't recommend. Only half the consumers we surveyed kept a landline.

You may be able to keep your phone number for the VoIP line. You can have your phone number reassigned to the VoIP line, but only if you terminate your landline service. It may take a few weeks for the transfer, so you'll have to use a temporary number during the transition. One exception: If your broadband access is through DSL, you may have to keep your current number for that line and get a new number for the VoIP line.

If you'd rather get a new phone number for the VoIP line, you can usually choose the area code. Say you live in Detroit but most of your callers live in Chicago. Get a number with their 312 area code, and you'll be a local call for them but a long-distance call for everyone in your town. However, all subscribers can choose any area code, so the one you want might not be available. Your number may or may not be listed in a 411 directory and a phone book, depending on the provider. Check with the company to see.

You get the usual calling features, generally at no extra cost. Most VoIP plans, whether limited or unlimited, include typical features such as voice mail, caller ID, call waiting, and call forwarding.

You'll probably get reliable service and decent sound quality. Judging by our survey group, frequent dropped calls and poor voice quality don't seem to be the typical experience. Still, don't be surprised if you occasionally have problems.

REASONS TO GET VOIP

Like any technology, VoIP has pros and cons. Here are some of its good points.

It costs you less. Unlimited calling plans start at $25 a month—sometimes less as part of promotions—and plans with a limited number of minutes may be even cheaper. A plan with 500 minutes of talk time, for example, might cost $15 or $20.

While international calls are not covered by flat-rate plans, per-minute rates are often far lower than you'd otherwise pay. Verizon VoiceWing, for example, bills calls to Kingston, Jamaica, at 12 cents a minute; Verizon's lowest rate for a traditional landline plan is 38 cents a minute. Some providers offer unlimited in-network calling among subscribers, even if they're in different countries.

One reason VoIP costs so much less than standard phone service is that it's not subject to all the taxes, surcharges, and other regulatory fees that jack up your landline and cell-phone bills. However, the Federal Communications Commission and Congress are examining various tax and regulatory issues, so that may change.

It can cost your out-of-town callers less. If you regularly receive calls from someone in another state, you may be able to set up a second number in their area code. They can then dial that local number, which is redirected to your VoIP number. You may have to pay $5 to $8 a month for each extra number.

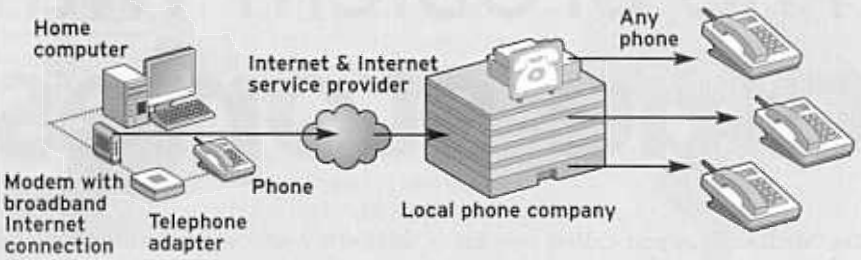
VoIP plans compared

DIAL UP WITH THE PLAN THAT'S RIGHT FOR YOU

	AT&T CallVantage	Optimum Voice	Time Warner Cable	Verizon VoiceWing	Vonage
Unlimited calling plan	$30/mo.	$35/mo.	$40/mo.	$35/mo.	$25/mo.
Limited calling plan	$20/mo. for unlimited local calls; 4¢/min. for long-distance.	none	none	$20 for 500 min.; 4¢/min. for extra time.	$15 for 500 minutes; 3.9¢/min. for extra time.
Voice mail	free	free	$3.95/mo.	free	free
Additional numbers	$5/mo.	not available	not available	$8/mo.	$5/mo.
Coverage area	U.S., Puerto Rico, Canada	U.S., Puerto Rico, Canada	U.S., Puerto Rico, Canada	U.S., Puerto Rico, Canada	U.S., Puerto Rico, Canada
Broadband type	cable or DSL	cable	cable	cable or DSL	cable or DSL
Availability	nationwide	parts of NY, NJ, CT	various markets in 27 states	nationwide	nationwide
Activation fee	$30 by phone or online; no fee at store.	no	no	$40 by phone; no fee for online orders.	$30 by phone or online; no fee at store.
Termination fee	No fee if canceled within 30 days or after 1 yr.	no	no	No fee if canceled within 30 days or after 1 yr.; otherwise $20.	No fee if canceled within 30 days or after 1 yr.; otherwise $40.
Installation	do it yourself	by company	by company	do it yourself	do it yourself
SAMPLE OF INTERNATIONAL RATES *(per minute, to landline)*					
Hong Kong	5¢	8¢	10¢	3¢	4¢
Kingston, Jamaica	12	32	45	12	12
Mexico City	7	8	9	7	6
New Delhi, India	16	23	36	15.7	17
Philippines	16	17	22	20	18
United Kingdom	5	7	7	3	4

closeup

HOW VOIP WORKS



1 In your house, an adapter between the phone and broadband connection converts voice calls into data.

2 These data packets travel over the Internet, just like e-mail, rather than over regular phone lines.

3 An Internet service provider converts the data back to voice and sends it to a local phone company.

4 Your voice call is delivered like any other. The people you call can use a regular phone and don't need an Internet hookup or special equipment.

You can use your home phone service from anywhere. Frequent travelers or users with more than one home can use any broadband Internet connection to place calls from their VoIP phone number, no matter where they are. About 30 percent of the users we surveyed have used this feature. To do so, you bring your VoIP adapter on your trip, connect it to a cable or DSL modem providing broadband access, and plug in a phone.

You'll get services not found on landline. Because VoIP is an Internet-based service, it offers more capabilities than traditional phone lines. Depending on the provider, you may be able to have voice messages e-mailed to you as sound files, which you can click on to hear; view details of calls on an online log; forward calls to other numbers—say, your cell phone and office—if you expect an urgent call; and set up do-not-disturb times during which calls go directly into voice mail.

DRAWBACKS TO CONSIDER

While it has many positive attributes, VoIP still isn't for everyone. Here's why:

It requires a broadband Internet connection. If you don't have cable or DSL broadband and get it specifically or primarily for VoIP, the typical $30 to $45 monthly fee will cancel out the savings.

You need some computer savvy to get VoIP up and running. Two-thirds of the group we surveyed installed VoIP themselves, and about 40 percent of those do-it-yourselfers had problems. Things may not go smoothly even if a pro installs it. About 40 percent of that group said setup took more than two hours, or it required two visits or replacement hardware.

Your VoIP phone won't work if you lose power or Internet access. Like a cordless phone, VoIP won't work during power outages. For about $45, you can buy a battery that provides four to six hours of talk time. But there's no way you can restore phone service if your cable or DSL broadband Internet access is disrupted.

There may be potentially serious limitations with emergency 911 service. VoIP isn't yet a reliable replacement for landline emergency service for many consumers. Your location might not automatically be reported to the 911 operator, and your call might be routed differently, possibly causing delays. (See Safety Wise, page 18.) As noted, you'll have no VoIP service if you lose power or Internet access. You could also have problems with home-security and medical-alert systems.

There are possible security risks. Because VoIP is Internet-based, it's potentially vulnerable to viruses, hackers, and denial of service. No incidents have been reported, but the risk is there. A term has even been coined for one threat—SPIT, for Spam over Internet Telephony.

Using the phone and Internet at the same time may affect service. In theory, you could run into problems using your broadband connection for both a phone and a computer. Internet access could slow or voice quality on calls could degrade if you're on the phone while someone uses the computer for bandwidth-intensive applications such as gaming, uploading photos, or downloading video.

VoIP may not work well with phone-dependent services. TiVo and satellite-TV services using phone lines for program-guide updates and other functions may not work as easily with VoIP as they do with traditional phone service.

THE BOTTOM LINE

If you can deal with the potential problems, VoIP can cut your phone bills, increase your talk time, and add useful new services. However, we urge you to keep a corded phone (requiring no power) and a basic landline plan for emergencies.

VoIP may save you money if you spend more than $60 for local and long-distance service. Assuming you're already paying for broadband, you can get an unlimited VoIP plan for $25 and a basic landline for about $20 and still save.

In choosing among providers:

See which VoIP providers serve your area. Start with your current Internet service provider, either the cable company or the phone company providing your DSL line. It may offer a discounted price for using more than one service.

Compare all plans. Flat-rate plans are great for big talkers, but if you don't make many long-distance calls, a basic plan with a limited number of minutes can save you money. See what each provider offers and whether there are charges for features you want, such as voice mail.

Look for services. Some companies may have features or capabilities you want. AT&T CallVantage, for example, has a Record & Send feature that lets you broadcast a recorded voice message to a list of numbers you designate.

Check international rates. Per-minute rates vary considerably from provider to provider. If you often call abroad, check which carrier has the lowest rates to the countries you call.

Read the fine print. Ask about service commitments, activation fees, billing, and early-termination fees. Some providers automatically bill your credit card in advance each month, which could be an issue if you like to review bills before paying them or prefer to pay by check.

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